

List of claims:

1. (Currently amended) A bushing for receiving molten material from a bushing leg of a glass tank and for fiberizing the molten material comprising at least two opposed sidewalls and at least two opposed end walls, a tip plate having at least 1600 orifices with at least 1600 hollow tips extending from a lower surface of the tip plate and arranged in double rows, the tip plate being attached to the sidewalls and end walls, the bushing having a boxlike shape having at least four interior corners, an interior support structure comprising a plurality of intersecting or crossing internal supports with angles between the intersecting supports at each intersection welded to a top surface of the tip plate for supporting the tip plate, at least some of the internal supports being attached to one or more of the end walls and at least some of the internal supports being attached to one or more of the sidewalls, the bushing also having linear external supports contacting the bottom of the tip plate and a screen in the bushing, the screen having a low flow rate center portion and one or more high flow rate portions, the high flow rate portion(s) being adjacent to the center portion and one or more walls of the bushing, the entire bottom of the screen resting on, or mounted near, the top of the interior support structure, the interior support structure, in cooperation with the at least one sidewall and the at least one end wall, forming at least 24 cells located between the bottom of the screen and the top of the tip plate, the screen having a plurality of screen areas containing holes through the screen with a screen area above each of the cells, the hole area per unit screen area being greater in the high flow rate portions(s) of the screen than the hole area per unit screen area in the low flow rate center portion of the screen, different in some screen areas than in other screen areas to achieve more uniform tip plate temperature profile, the screen being located so close to the top of the interior support structure that the distance from the bottom of the screen to the top of the interior support structure is less

than that at which lateral flow of molten glass from one cell to one or more adjacent cells becomes significant to maintaining optimization of tip plate temperature profile.

2. (Currently amended) The bushing of claim 1 wherein the interior support structure is made of a precious metal or a precious metal alloy, the screen is a first screen and a second screen having holes therethrough is laying on the top of the first screen, at least some of the holes in the second screen aligning with holes in the first screen and the area of the holes per unit area of the second screen is being less than the area of holes per unit area of the first screen.

3. (Previously presented) The bushing of claim 1 wherein the interior support structure contains diamond shaped cells and is also attached to the sidewalls and wherein the bushing has at least 1600 hollow tips.

4. (Currently amended) The bushing of claim 81 [[2]] wherein the interior support structure contains diamond shaped cells and is also attached to the sidewalls.

5. (Previously presented) The bushing of claim 1 wherein some supports of the interior support structure enter the interior corners of the bushing.

6. (Currently amended) The bushing of claim 81 [[2]] wherein some supports of the interior support structure enter the interior corners of the bushing.

7. (Previously presented) The bushing of claim 3 wherein some supports of the interior support structure enter the interior corners of the bushing.

8. (Original) The bushing of claim 1 wherein the bushing contains at least 32 cells between the screen and the tip plate.

9. (Currently amended) The bushing of claim 81 [[2]] wherein the bushing contains at least 32 cells between the first screen and the tip plate.

10. (Original) The bushing of claim 3 wherein the bushing contains at least 32 cells between the screen and the tip plate.

11. (Original) The bushing of claim 1 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen areas that are closest to a lengthwise centerline of the screen.

12. (Currently amended) The bushing of claim 81 [[2]] wherein a screen area of the second screen closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen areas that are closest to a lengthwise centerline of the screen.

13. (Original) The bushing of claim 3 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

14. (Currently amended) The bushing of claim 4 wherein a screen area in the second screen closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

15. (Original) The bushing of claim 5 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

16. (Currently amended) The bushing of claim 6 wherein a screen area of the second screen closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

17. (Original) The bushing of claim 7 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

18. (Original) The bushing of claim 8 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

19. (Currently amended) The bushing of claim 9 wherein a screen area of the second screen closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

20. (Original) The bushing of claim 10 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

21. (Currently amended) The bushing of claim 1 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area in the

range of about 10 to about 16 percent, than screen areas closest to a lengthwise-centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

22. (Currently amended) The bushing of claim 81 [[2]] wherein screen areas of the second screen nearest an end wall of the bushing have a substantially higher hole area per unit screen area than screen areas closest to a center portion lengthwise-centerline of the screen.

23. (Currently amended) The bushing of claim 3 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise-centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

24. (Currently amended) The bushing of claim 4 wherein screen areas of the second screen nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise-centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

25. (Currently amended) The bushing of claim 5 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise-centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

26. (Currently amended) The bushing of claim 6 wherein screen areas of the second screen nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

27. (Currently amended) The bushing of claim 7 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

28. (Currently amended) The bushing of claim 8 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

29. (Currently amended) The bushing of claim 9 wherein screen areas of the second screen nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

30. (Currently amended) The bushing of claim 10 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise

centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

31. (Currently amended) A bushing for receiving molten material from a bushing leg of a glass tank and for fiberizing the molten material comprising at least two opposed sidewalls and at least two opposed end walls, a tip plate having at least 1600 orifices with at least 1600 hollow tips extending from a lower surface of the tip plate and arranged in double rows, the tip plate being attached to the sidewalls and end walls, the bushing having a boxlike shape having at least four interior corners, an interior support structure comprising a plurality of intersecting or crossing internal supports with angles between the intersecting supports at each intersection welded to a top surface of the tip plate for supporting the tip plate, at least some of the internal supports being attached to one or more of the end walls and at least some of the internal supports being attached to one or more of the sidewalls, the bushing also having linear external supports contacting the bottom of the tip plate and a screen in the bushing, the screen having a low flow rate center portion and one or more high flow rate portions, the high flow rate portion(s) being adjacent to the center portion and one or more walls of the bushing, with the entire bottom of the screen resting on, or mounted near, the top of the interior support structure, the interior support structure, in cooperation with the at least one sidewall and the at least one end wall, forming at least 32 cells located between the bottom of the screen and the top of the tip plate, the screen having a plurality of screen areas containing holes through the screen with a screen area above each of the cells, the hole area per unit screen area being greater in the high flow rate portion(s) of the screen than the hole area per unit screen area in the low flow rate center portion of the screen, different in some screen areas than in other screen areas to achieve more uniform tip plate temperature profile, the screen being located so close to the top of the interior support structure that the distance from the bottom of the screen to the top of the interior

support structure is less than that at which lateral flow of molten glass from one cell to one or more adjacent cells becomes significant to maintaining optimization of tip plate temperature profile.

32. (Currently amended) The bushing of claim 31 wherein the interior support structure is made of a precious metal or a precious metal alloy, the screen is a first screen and a second screen having holes therethrough is laying on the top of the first screen, at least some of the holes in the second screen aligning with holes in the first screen and the area of the holes per unit area of the second screen is being less than the area of holes per unit area of the first screen.

33. (Previously presented) The bushing of claim 31 wherein the interior support structure contains diamond shaped cells and is also attached to the sidewalls and wherein the bushing has at least 1600 hollow tips.

34. (Currently amended) The bushing of claim [[3]] 82 wherein the interior support structure contains diamond shaped cells and is also attached to the sidewalls.

35. (Original) The bushing of claim 31 wherein supports that are part of the interior support structure enter the interior corners of the bushing.

36. (Currently amended) The bushing of claim [[3]] 82 wherein supports that are part of the interior support structure enter the interior corners of the bushing.

37. (Original) The bushing of claim 33 wherein supports that are part of the interior support structure enter the interior corners of the bushing.

38. (Original) The bushing of claim 31 wherein the bushing contains at least 34 cells between the screen and the tip plate.

39. (Currently amended) The bushing of claim [[3]] 82 wherein the bushing contains at least 34 cells between the first screen and the tip plate.

40. (Original) The bushing of claim 33 wherein the bushing contains at least 34 cells between the screen and the tip plate.

41. (Original) The bushing of claim 31 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen areas that are closest to a lengthwise centerline of the screen.

42. (Currently amended) The bushing of claim [[3]] 82 wherein a screen area of the second screen closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen areas that are closest to a lengthwise centerline of the screen.

43. (Original) The bushing of claim 33 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

44. (Currently amended) The bushing of claim 34 wherein a screen area of the second screen closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

45. (Original) The bushing of claim 35 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

46. (Currently amended) The bushing of claim 36 wherein a screen area of the second screen closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

47. (Original) The bushing of claim 37 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

48. (Original) The bushing of claim 38 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

49. (Currently amended) The bushing of claim 39 wherein a screen area of the second screen closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

50. (Original) The bushing of claim 40 wherein a screen area closest to each corner of the bushing has a hole area per unit screen area that is substantially greater than that of the screen area that is closest to a lengthwise centerline of the screen.

51. (Currently amended) The bushing of claim 31 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

52. (Currently amended) The bushing of claim [[3]] 82 wherein screen areas of the second screen nearest an end wall of the bushing have a substantially higher hole area per unit screen area than screen areas closest to a lengthwise centerline a the center portion of the screen.

53. (Currently amended) The bushing of claim 33 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

54. (Currently amended) The bushing of claim 34 wherein screen areas of the second screen nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

55. (Currently amended) The bushing of claim 35 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise

centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

56. (Currently amended) The bushing of claim 36 wherein screen areas of the second screen nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

57. (Currently amended) The bushing of claim 37 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

58. (Currently amended) The bushing of claim 38 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

59. (Currently amended) The bushing of claim 39 wherein screen areas of the second screen nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

60. (Currently amended) The bushing of claim 40 wherein screen areas nearest an end wall of the bushing have a substantially higher hole area per unit screen area, in the range of about 10 to about 16 percent, than screen areas closest to a lengthwise centerline in the center portion of the screen, in the range of about 2.5 to about 6 percent.

61. (Currently amended) A method of making a bushing for receiving molten material from a bushing leg of a glass tank and for fiberizing the molten material, the bushing comprising at least two opposed sidewalls and at least two opposed end walls, a tip plate having at least 1600 orifices with at least 1600 hollow tips extending from a lower surface of the tip plate and arranged in double rows, attaching the tip plate to the sidewalls and end walls, the bushing having a boxlike shape having at least four interior corners, welding an interior support structure comprising a plurality of intersecting or crossing internal supports with angles between the intersecting supports at each intersection to a top surface of the tip plate to support the tip plate in operation, at least some of the internal supports being attached to one or more of the end walls and at least some of the internal supports being attached to one or more of the sidewalls, the bushing also having linear external supports contacting the bottom of the tip plate and the bushing having a screen in the bushing resting on or mounted near the top of the interior support structure, the screen having a low flow rate center portion and one or more high flow rate portions, the high flow rate portion(s) being adjacent to the center portion and one or more walls of the bushing, the internal support structure, in cooperation with the at least one sidewall and the at least one end wall, forming at least 24 cells located between the bottom of the screen and the top of the tip plate, the screen having a plurality of screen areas containing holes through the screen with a screen area above each of the cells, adjusting the hole area per unit screen area above each cell such that the hole area per unit screen area in the high flow rate portion(s) of the screen is greater than the hole area

per unit screen area in the low flow rate center portion of the screen, different in some screen areas than in other screen areas- to achieve more uniform tip plate temperature profile, and attaching the screen such that the entire bottom of the screen is so close to the top of the interior support structure that the distance from the bottom of the screen to the top of the interior support structure is less than that at which lateral flow of molten glass from one cell to one or more adjacent cells becomes significant to maintaining optimization of tip plate temperature profile.

62. (Currently amended) The method of claim 61 wherein the interior support structure is made of a precious metal or a precious metal alloy, the screen is a first screen and a second screen having holes therethrough is placed in contact with a top of the first screen, at least some of the holes in the second screen aligning with holes in the first screen and the area of the holes per unit area of the second screen is being less than the area of holes per unit area of the first screen.

63. (Currently amended) The method of claim 61 wherein the interior support structure is made to contain diamond shaped cells, and is also attached to the sidewalls by welding and wherein the bushing is fabricated to have at least 4000 or more [[30]] tips.

64. (Original) The method of claim 62 wherein the interior support structure is made to contain diamond shaped cells and is attached to the sidewalls by welding.

65. (Original) The method of claim 61 wherein supports that are part of the interior support structure are made to enter the interior corners of the bushing.

66. (Original) The method of claim 62 wherein supports that are part of the interior support structure are made to enter the interior corners of the bushing.

67. (Original) The method of claim 63 wherein supports that are part of the interior support structure are made to enter the interior corners of the bushing.

68. (Original) The method of claim 61 wherein the internal support structure is made to contain at least 32 cells between the screen and the tip plate.

69. (Previously presented) The method of claim 62 wherein the internal support structure is made to contain at least 32 cells between the first screen and the tip plate.

70. (Original) The method of claim 63 wherein the internal support structure is made to contain at least 32 cells between the screen and the tip plate.

71-80. (Cancelled)

81. (New) A bushing for receiving molten material from a bushing leg of a glass tank and for fiberizing the molten material comprising at least two opposed sidewalls and at least two opposed end walls, a tip plate having at least 1600 orifices with at least 1600 hollow tips extending from a lower surface of the tip plate and arranged in double rows, the tip plate being attached to the sidewalls and end walls, the bushing having a boxlike shape having at least four interior corners, an interior support structure comprising a plurality of intersecting or crossing internal supports with angles between the intersecting supports at each intersection welded to a top surface of the tip plate for supporting the tip plate, at least some of the internal supports being attached to one or more of the end walls and at least some of the internal supports being attached to one or more of the sidewalls, the bushing also having linear external supports contacting the bottom of the tip plate and a first screen in the bushing, the entire bottom of the first screen resting on, or mounted near, the top of the interior support structure, the interior support structure, in cooperation

with the at least one sidewall and the at least one end wall, forming at least 24 cells located between the bottom of the first screen and the top of the tip plate, the first screen having a plurality of screen areas containing holes through the first screen with a screen area above each of the cells, the hole area per unit screen area being different in some screen areas than in other screen areas to achieve more uniform tip plate temperature profile, the first screen being located so close to the top of the interior support structure that the distance from the bottom of the first screen to the top of the interior support structure is less than that at which lateral flow of molten glass from one cell to one or more adjacent cells becomes significant to maintaining optimization of tip plate temperature profile and wherein the interior support structure is made of a precious metal or a precious metal alloy and a second screen having holes therethrough is laying on the top of the first screen, at least some of the holes in the second screen aligning with holes in the first screen and the area of the holes per unit area of the second screen is less than the area of holes per unit area of the first screen.

82. (New) A bushing for receiving molten material from a bushing leg of a glass tank and for fiberizing the molten material comprising at least two opposed sidewalls and at least two opposed end walls, a tip plate having at least 1600 orifices with at least 1600 hollow tips extending from a lower surface of the tip plate and arranged in double rows, the tip plate being attached to the sidewalls and end walls, the bushing having a boxlike shape having at least four interior corners, an interior support structure comprising a plurality of intersecting or crossing internal supports with angles between the intersecting supports at each intersection welded to a top surface of the tip plate for supporting the tip plate, at least some of the internal supports being attached to one or more of the end walls and at least some of the internal supports being attached to one or more of the sidewalls, the bushing also having linear external supports contacting the bottom of the tip plate and a first screen in the bushing with the entire bottom of the first screen resting on, or mounted near, the top of the interior support structure, the interior support structure, in cooperation

with the at least one sidewall and the at least one end wall, forming at least 32 cells located between the bottom of the screen and the top of the tip plate, the first screen having a plurality of screen areas containing holes through the first screen with a screen area above each of the cells, the hole area per unit screen area being different in some screen areas than in other screen areas to achieve more uniform tip plate temperature profile, the first screen being located so close to the top of the interior support structure that the distance from the bottom of the first screen to the top of the interior support structure is less than that at which lateral flow of molten glass from one cell to one or more adjacent cells becomes significant to maintaining optimization of tip plate temperature profile and wherein the interior support structure is made of a precious metal or a precious metal alloy and a second screen having holes therethrough is laying on the top of the first screen, at least some of the holes in the second screen aligning with holes in the first screen and the area of the holes per unit area of the second screen is less than the area of holes per unit area of the first screen.